CLAIMS

WHAT IS CLAIMED IS:

1. A method for propagating filters to an upstream device comprising:

generating a filter at a first network device;

5   sending information on said filter to a second network device located upstream from said first network device; and

requesting said second network device to install said filter.

2. The method of claim 1 wherein generating a filter at a first network device

10   comprises automatically generating said filter based on network flow entering the device.

3. The method of claim 1 further comprising receiving information based on monitored network flow and removing said filter from the first network device when the

15   network flow requiring said filter is no longer present.

4. The method of claim 3 further comprising requesting said upstream device to remove said filter.

5. The method of claim 1 further comprising refining said filter at said first network device based on said monitored network flow.

6. The method of claim 5 further comprising requesting the upstream network device to refine said filter.

7. The method of claim 1 wherein generating a filter comprises detecting potentially harmful network flows and generating a filter to prevent packets corresponding to said detected potentially harmful network flows from passing through said network device.

8. The method of claim 7 wherein generating filters further comprises classifying network flow based on a source device sending a packet.

9. The method of claim 8 wherein the network flow is classified based on an address of the source device.

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10. The method of claim 1 wherein generating filters comprises analyzing network flow entering said first network device.

11. The method of claim 10 wherein analyzing said network flow is performed

5   by software.

12. The method of claim 10 comprising selecting a class of network flows to analyze based on previously analyzed network flows.

10   13. A computer program product for propagating a filter to an upstream device, comprising:

code that generates a filter at a first network device;

code that sends information on said filter to a second network device located upstream from said first network device; and

15   code that requests said second network device to install said filter.

14. The computer program product of claim 13 wherein the computer readable medium is selected from the group consisting of CD-ROM, floppy disk, tape, flash memory, system memory, hard drive, and data signal embodied in a carrier wave.

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15. The computer program product of claim 13 wherein the code that generates said filter comprises code that analyzes network flows and detects potentially harmful network flows.

16. The computer program product of claim 13 further comprising code that

10 removes said filter from the first network device when no longer required.

17. The computer program product of claim 13 further comprising code that requests said upstream device to remove said filter.

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18. A system for propagating filters to an upstream device, comprising:

means for generating a filter at a first network device;

means for sending information on said filter to a second network device located upstream from said first network device; and

5   means for requesting said second network device to install said filter.

19. A method for installing filters on connected network devices, comprising:

analyzing network flows received at a first network device;

generating a filter at a second network device based on said analyzed flows; and

10   propagating said filter from the second network device to the first network device.

20. The method of claim 19 wherein propagating said filter comprises propagating filter information upstream such that said filter is positioned closer to a

15   source of said flows.

21. A method for updating filters on a device, comprising:

receiving data at an upstream device;

filtering at least a portion of the data before sending the data to a downstream device;

5   sending statistics based on the data received at the upstream device to the downstream device;

receiving filter information from the downstream device; and

updating a filter installed on the upstream device.

10   22. The method of claim 21 wherein receiving filter information comprises using a filter propagation protocol.

23. The method of claim 22 wherein the filter propagation protocol is operable to create, remove, or modify existing filters.

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24. The method of claim 22 wherein the filter propagation protocol uses negative routing.

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25. A method for propagating filters to an upstream device, comprising:

sending filter information to the upstream device;

receiving flow information based on network flow received at the upstream device ;

5   analyzing said flow information; and

sending updated filter information to the upstream device.

26. The method of claim 25 wherein said flow information includes a packet and byte count of packets received and dropped at the upstream device.

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27. A system for propagating filters to an upstream device comprising a processor configured to send filter information to the upstream device, receive flow information based on network flow received at the upstream device, analyze said flow information, and send updated filter information to the upstream device; and memory

15   for storing said flow information.

28. A system for updating filters on a device comprising a processor configured to receive data at an upstream device, send statistics based on the data received at the upstream device to a downstream device, receive filter information from the downstream device, and update a filter installed on the upstream device; a filter

5   operable to filter at least a portion of the received data before sending the data to the downstream device; and memory operable to at least temporarily store said filter information.

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